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Before the
Federal Communications Commission RECEIVED
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In the Matter of)
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Amendment of the Commission's Rules)
Regarding Dedicated Short- Range)
Communications Services in the)
5.859 – 5.925 GHz Band (5.9 GHz Band))
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Amendment of Parts 2 and 90 of the)
Commission's Rules to Allocate the 5.850-)
5.925 GHz Band to the Mobile Service for)
Dedicated Short Range Communications)
of Intelligent Transportation Services)

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

WT Docket No. 01-90

ET Docket No. 98-95
RM-9096

To The Commission:

**COMMENTS OF THE
E-ZPASS INTERAGENCY GROUP**

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SUMMARY

The E-ZPass Interagency Group (“IAG”) is a regional consortium of the following **21** public transportation agencies spanning ten northeastern states committed to offering a fully interoperable electronic toll collection system, popularly known as E-ZPass.

Buffalo and Fort Erie Public Bridge Authority
Burlington County Bridge Commission
Delaware Department of Transportation
Delaware River and Bay Authority
Delaware River Joint Toll Bridge Commission
Delaware River Port Authority
Indiana Department of Transportation
Maine Turnpike Authority
Maryland Transportation Authority
Massachusetts Turnpike Authority
MassPort
New Hampshire DOT Bureau of Turnpikes
New Jersey Highway Authority
New Jersey Turnpike Authority
New York State Bridge Authority
New York State Thruway Authority
Pennsylvania Turnpike Commission
Port Authority of New York & New Jersey
South Jersey Transportation Authority
Triborough Bridge and Tunnel Authority
West Virginia Parkways Economic Development & Tourism Authority

With approximately 8 million reader tags now in use by the motoring public, E-ZPass is the largest Electronic Toll Collection network in the world.

Up to now, Electronic Toll Collection services have been the leading application of DSRC technology. With the advent of DSRC services in the 5.9GHz band, IAG anticipates the development of a diversity of new and innovative intelligent highway services that will be provided by public bodies and others to protect the safety of life, health and/or property. To facilitate the promise of these DSRC services in the 5.9GHz band, the development of rules and policies in this proceeding must be governed by the following fundamental precepts:

-- The core purpose of DSRC must be to promote public safety on our nation's highways. While sufficient flexibility is needed to accommodate a variety of yet-to-be defined applications and technologies, both public and private, the band must be dedicated primarily to the provision of public safety services that protect the safety of life, health and/or property.

-- Interoperability among all users must be fostered through the adoption of the widely accepted **ASTM E2213-02** DSRC Standard, including both Layers 1 and 2 , and related equipment compatibility standards.

-- Consistent with the use of the band primarily for public safety services, an auction licensing approach is not permissible for either public safety or private users. Rather, licenses for both public safety and private use should be issued on a site-specific basis subject, to appropriate frequency coordination procedures to reduce the potential for interference among all users. For public agencies with special coverage requirements, blanket licensing within an appropriately defined communications zone should be allowed. In the event of conflict between a public safety and private use, the private use should be treated as secondary.

-- The new 5.9 GHz allocation should be undertaken without prejudice to the continued DSRC use of the **900 MHz** band. While it is anticipated that existing Electronic Toll Collection and related operations in the **900 MHz** band will migrate over time to the **5.9 GHz** band, that will necessarily be an extended implementation process requiring dual, transitional operations in both **900 MHz** and **5.9 GHz** for the foreseeable future.

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| 5.925 GHz Band to the Mobile Service for |) | RM-9096 |
| Dedicated Short Range Communications |) | |
| of Intelligent Transportation Services |) | |

To The Commission:

**COMMENTS OF THE
E-ZPASS INTERAGENCY GROUP**

The E-ZPass Interagency Group (“IAG”), by its attorneys, hereby submits the following comments in response to the Commission’s Notice of Proposed Rulemaking and Order, FCC 02-302, released November 15,2002 (“NPRM”) in the above referenced matter concerning the establishment of Dedicated Short-Range Communication (“DSRC”) services in the 5.850-5.925 GHz band.

I. INTRODUCTION

IAG is a regional consortium of 21 public transportation agencies spanning ten northeastern states committed to offering a fully interoperable electronic toll collection system,

popularly known as E-ZPass. Since its introduction in 1993, the E-ZPass network has grown rapidly and now serves motorists using approximately eight million reader tags. E-ZPass is the largest Electronic Toll Collection ("ETC") network in the world and is heavily relied on by its customers who in 2001 alone used the system for approximately **one** billion toll transactions.

Over 2,500 E-ZPass toll lanes serving thousands **of** miles **of** toll roads, bridges and tunnels are currently operated by the following public transportation agencies:

- Buffalo and Fort Erie Public Bridge Authority
- Burlington County Bridge Commission
- Delaware Department of Transportation
- Delaware River and Bay Authority
- Delaware River Joint Toll Bridge Commission
- Delaware River Port Authority
- Indiana Department of Transportation
- Maine Turnpike Authority
- Maryland Transportation Authority
- Massachusetts Turnpike Authority
- MassPort
- New Hampshire DOT Bureau **of** Turnpikes
- New Jersey Highway Authority
- New Jersey Turnpike Authority
- New York State Bridge Authority
- New York State Thruway Authority
- Pennsylvania Turnpike Commission
- Port Authority of New York & New Jersey
- South Jersey Transportation Authority
- Triborough Bridge and Tunnel Authority
- West Virginia Parkways Economic Development & Tourism Authority

The extensive networks of key road, bridge and tunnel facilities operated by these agencies and their location is shown on the Map attached as Attachment A. By increasing the capacity of a toll lane from 250 to 300%, E-ZPass substantially improves vehicle flow, reduces congestion for motorists and contributes to a safer driving environment, reduces auto emissions and improves fuel consumption rates. Capacity will further increase with the introduction of open road tolling which is scheduled to start next year.

As of this time, Electronic Toll Collection, ETC, has been the leading application of DSRC technology. IAG and its member agencies have been at the forefront in the development and use of DSRC service technology for ETC applications and have been active participants in industry standards-setting processes and the development of performance standards.

The technology and equipment currently used by E-ZPass operates in the 902-928 MHz Band under Subpart M of Part 90 of the Commission's rules authorizing the Intelligent Transportation Systems Radio Service. E-ZPass operations are expected to migrate over time to the new 5.850-5.925 GHz Band, once DSRC technologies and services are established based on the rules and policies to be adopted in this proceeding. Based on both its substantial experience in the planning, development and establishment of existing lower Band services and in the planning effort for higher Band use, IAG is pleased to offer the following comments with respect to the FCC's policies and rules that will govern the development and provision of 5.9 GHz DSRC services to the public.

II. DSRC SERVICE DEFINED

At the outset, it must be appreciated that DSRC is an evolving service for which all of the potential applications have yet to be clearly defined. While a vast array of potentially beneficial

applications have been identified, many uncertainties currently exist as to the pace of development and the extent to which particular applications will ultimately find acceptance in the marketplace. It is for this fundamental reason that the Commission's definition of DSRC service needs to be sufficiently flexible to accommodate a variety of yet-to-be defined applications and technologies, while maintaining the core purpose of the band to provide for the development of intelligent highway services used to protect the safety of life, health and/or property. As the Commission has tentatively concluded, the principal purpose of DSRC must be to promote public safety on our nation's highways. The priority of use for licensed facilities which are used to protect the safety of life, health and/or property must be the benchmark for the resolution of all aspects of this proceeding. That includes a wide variety of still-developing public highway services and technologies that will be used to promote safe, efficient traffic flow (including electronic toll collection), collision avoidance, and rapid emergency responses.

At the same time, however, IAG recognizes that the participation of the private sector in the development of new DSRC technology and services is necessary to stimulate the introduction of new services and technology as rapidly and fully as possible. Such "private" uses should help drive research and development of DSRC technologies and increase vendor interest in the service. The result will be broader availability of technology for governmental users, lower equipment costs, and ultimately, ubiquitous deployment of interoperable technologies. The wider the scope of available services to the public, the more likely it is that standardized DSRC equipment will become a "standard" addition to vehicles of the future.

Given this developing environment, in addition to a properly balanced service definition, the Commission has the clear obligation to fashion eligibility and licensing rules and policies that will provide the process to ensure a reasonable balance of use between public and private users.

As the Commission notes in the NPRM, the definition of DSRC service is closely related to the issue of license eligibility. The radio spectrum allocated for DRSC is not unlimited, and the potential for public safety services to be crowded out is real, especially along congested highway corridors. Accordingly, this is not a situation in which the Commission can rely upon the definition of the service alone to effectuate its mandate. The critical importance of the licensing rules hereinafter outlined to ensure that public safety retains its priority status cannot be understated. It is imperative that the Commission through carefully fashioned licensing and eligibility policies maintain a proper degree of oversight and have adequate licensing and use information at hand to maintain the fundamental public safety character of the band.

The NPRM identifies two changes in the current definition of DSRC services (Section 90.7), the need for which is already apparent. First, we agree with the Commission that the term “non-voice” should be deleted from the definition to accommodate data services such as “store and forward” voice communication and or text-to-voice messaging systems. “Voice” communication in that context can be particularly useful for transmitting critical information within vehicles where driver distraction is a potential problem. The term “non-voice” can be deleted from the definition while maintaining the basic “data” requirement of DSRC and excluding real-time voice communication (for which other radio services and frequency bands are better suited).

Second, IAG supports the recommendation of ITS America to modify the current definition of DSRC service to substitute the phrase “and private environments” for the current wording “and commercial environments” in Section 90.7 of the rules. In our opinion, this will provide for the appropriate balance of public safety **use** and other private uses in furtherance of

the licensee’s business activities and more clearly define the scope of non-public safety use intended by the Commission.

III. SERVICE ELIGIBILITY REQUIREMENTS

IAG supports eligibility requirements that ensure priority for government entities, while permitting “private” uses that are consistent with the fundamental public safety and intelligent highway purpose of DSRC. Several eligibility definitions are discussed in the NPRM, including for public safety users the broad definition of public safety radio services contained in Section 309(j)(2) of the Communications Act for the purpose of delineating those services that should not be subject to spectrum auctions. Also discussed in the NPRM is the narrower definition of “public safety services” contained in Section 337(f)(1) of the Act, which is intended to govern eligibility for licenses in the 700 MHz public safety band. Under either definition, IAG members would clearly qualify as public safety users for DSRC licenses. In IAG’s view, the broader definition contained in Section 309(j)(2) should be used because it more accurately reflects the intended scope and purpose of the DSRC service. IAG urges the FCC to adopt the Section 309(j)(2) definition and find expressly that the use of DSRC facilities for ETC purposes falls within that public safety services definition.’

All IAG members are state agencies or public authorities charged with the mission of operating public highways, bridges and tunnels which are vital to our national transportation infrastructure. Specific responsibilities often include maintaining safe road conditions, removal of disabled vehicles, law enforcement, maintaining safe and efficient traffic flow, controlling

¹ For non-public safety uses, IAG believes the eligibility standard proposed by ITS America (NPRM, paragraph 23) represents a reasonable definition of the extent to which private use should be permitted. Certainly, private use should not be defined so broadly as to permit any use that is not public safety.

hazardous material transportation, emergency response, incident response and management and (more than ever) addressing potential terrorist threats to transportation infrastructure. Electronic toll collection is a key part of those responsibilities, as it prevents major traffic delays and permits the rapid and efficient movement of traffic through congested areas. E-ZPass technology known as our TRANSMIT project also helps to monitor traffic flow and provides early detection of highway incidents. Related intelligent highway technologies, such as variable message signs, provide advance warnings and to vehicles regarding hazardous road conditions, construction, traffic congestion, and emergencies. The development of DSRC services is expected to integrate these and other technologies to promote safer, more efficient transportation on public highways, bridges and tunnels.

IV. INTEROPERABILITY STANDARDS

We believe the adoption of, and compliance with a common standard will serve the best interests of the end user, equipment manufacturers, installers and service provider communities. Compliance with a national standard for DSRC systems will ensure interoperability, enhance competition and market growth, reduce both component and installation costs and shorten the time between development and the marketplace. This has been demonstrated in our E-Pass operations where a common technology has been widely accepted in ten states and border crossings.

The FCC has expressed concern that the designation of **DSRC** standards at this time may restrict technical innovation and participation in product development at 5.9GHz. To the contrary, the development of **ASTM E2213-02 DSRC Standard** is a product of a rigorous and concerted effort, for several years, which involved extensive participation of a broad cross

section of the international scientific, manufacturing and user communities. Consensus was reached amongst these participants who came from diverse interests, technical backgrounds and experiences. We believe DSRC Standard ASTM E2213-02 is both technically sound and conducive enough to satisfy existing users and attract potential new players in market development.

The ASTM E2213-02 DSRC standard is based on the widely used Institute of Electrical and Electronic Engineers (IEEE) 802.11 and 802.11a wireless communication standards. There already exists a large manufacturing base of devices compatible to these standards, which would enhance interoperability and market growth for DSRC based applications, products and services in the 5.9 GHz band.

Therefore, we firmly support the ASTM E2213-02 DSRC Standard, and urge the FCC to adopt it as an open, non-proprietary wireless transmission standard for DSRC applications in the 5.9 GHz band. We also recommend the licensing and service rules for the band specify compliance with Layer I (the physical layer) and Layer 2 (the Medium Access Control) of the ASTM E2213-02 DSRC Standard.

In addition, we recommend that the rules, specifying interoperability must include equipment compatibility as well. To ensure compatibility and thus interoperability, DSRC On-board Units (OBU's) operating in the 5.9 GHz should be type certified and authorized generally by rule. These measures are critical steps for achieving national interoperability in DSRC applications in the 5.9 GHz Band.

V. LICENSING REQUIREMENTS FOR RSUs AND OBUs

As suggested in the NPRM, DSRC licenses in the 5.9 GHz band may not be issued by auction. Several compelling statutory and public interest factors support this conclusion. First and foremost, the principal purpose of the band is for public safety radio services, which are properly exempt from auction under Section 309(j) of the Communications Act. Second, because of the proposed shared use of the band for both public safety and private services, there is no feasible way for the Commission to fashion an auction system that would apply only to private users - - absent the splitting of the band into separate public safety and private bands, an approach which IAG strongly opposes. This approach would, if anything, take spectrum away from public safety use by creating an unnecessary private reserve. Third, as the Commission has already found in authorizing DSRC services in the 900 MHz band, both the nature of anticipated services and small size of service areas dictate that the use of an auctioning approach is not appropriate for private users.’ Indeed, the concept of a geographic wide area license granted on an exclusive use basis by auction is completely at odds with the way in which private licensees will need, or should be permitted, to make use of the 5.9 GHz DSRC band.

The Commission should instead issue licenses for both public safety and private use on a site-specific basis subject to appropriate frequency coordination to reduce the potential for interference among all users. As the Commission has previously found with respect to 900 MHz operations, “in a shared use environment, it is important that applicants and other co-channel users know exactly where systems are located if they are to avoid interference.” Report and Order, supra, 10 FCC Rcd at 4231. Arbitrary geographic areas (e.g., states or “Economic Areas”) should not be used for DSRC licenses, as users requirements will in most cases be at a

² See Amendment of Part 90 of the Commission’s Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, Report and Order, 10 FCC Rcd. 4695,4721-22 (1995).

far more narrowly defined location(s) or within more narrowly defined areas (e.g., along certain highway corridors, river crossings, etc).

More specifically, the licenses for Road Side Units (RSU) should be granted on a site-specific basis, with each RSU corresponding to a specifically defined “communications zone”. In addition, public agencies such as toll operators, responsible for a large number of facilities across a wide geographic area, should be able in a single application to obtain a single “blanket” license to operate their systems within the appropriately defined “communications zone” defined in the aggregate by the specific site locations proposed in the application.³ This would save the agencies unnecessary cost and effort required to file for multiple licenses. It should also relieve the spectrum administrator from any unnecessary administrative burden. We urge the FCC to use the DSRC device classes for the RSU as well as transmission power ranges that are proposed in the ASTM E2213-02 DSRC standard as a frame of reference for issuing appropriate licenses to applicants.

With one important exception, site specific licensing should be the same for public safety and private DSRC licensees. By this, we mean that both classes of service should be licensed on a site-specific basis subject to appropriate coordination procedures to prevent mutually destructive interference. In this way, the Commission will be able to maintain a suitable database of actual **use** by both classes of users and be in a position to monitor the development of the band to ensure that the intended **use** of the band primarily for public safety services is, in fact, honored.

³ In this respect, Section 90.353 of the Commission’s rules currently authorizes governmental operations to file applications for non-multilateration licenses covering a given Economic Area (EA), identifying all planned sites. In addition, applicants should be permitted to define a more specific “communications zone” in which it proposes to operate.

The one important exception pertains to the status of the private user in the event that its proposed licensing or actual use produces an interference condition to the defined service area of a public safety DSRC station. In that event, the private DSRC station should be classified as a secondary use required to make whatever changes are necessary to eliminate the interference condition. Because of the relatively small service areas of DSRC stations, IAG believes that the potential for such an interference condition is not substantial. However, in those situations where an interference condition is presented, the public safety DSRC station clearly must be accorded primary status over the private use under the requirements of the Communications Act.

This secondary use concept is essentially what the Band Plan set forth in the NPRM has proposed for the high power channel (#184). Certainly, given the basic public safety allocation of the band, the extension of the principle to all Band Plan channels is required in the public interest. Given the anticipated ability of public safety and private users to co-exist in most cases due to the extremely small service areas of stations, no disadvantage should accrue to private users. Other than this one change, IAG supports the recommended division of the 5.9 GHz Band into seven channels, each 10 MHz wide, with the remaining 5 MHz reserved for future use, as proposed in the ASTM ET2213-02 DSRC standard as now envisioned.

On Board Units (OBU's) operating in the 5.9 GHz band will be somewhat different than current transponder devices operating on a licensed basis associated with a specific system in the 900 MHz band. Accordingly, IAG believes that the Commissioner must adopt a new licensing approach based on the concept of authorization by rule. This is a far more preferable approach than individual system licensing which would be an administrative impossibility or classification as unlicensed devices which would not provide sufficient oversight. As DSRC applications for ITS use continue to grow, it is anticipated that millions of passenger, bus and commercial

vehicles will be OBU equipped and that OBU's will be able to communicate with a wider variety of RSU system operators. As a result, licensing each of these units on an individual system basis would be impractical, inefficient and costly. It would also slow development and production of devices by OEMs. On the other hand, licensing by rule of these devices could enhance the development of new devices as well as speed production and market growth. Finally, we also believe that organizations such as OmniAir, a division of the IBTTA, can certify that DSRC components meet all applicable standards. This could assist in avoiding unnecessary, costly and repetitive testing by both users and integrators alike.

VI. CONTINUED OPERATION OF EXISTING 900 MHz SYSTEMS

The Commission should clearly establish that the new 5.9 GHz allocation does not have any impact on continued DSRC use of the 900 MHz band. While IAG members intend to migrate operations over time to the 5.9 GHz band, that will necessarily be an extended implementation process requiring dual, transitional operations in both 900 MHz and 5.9 GHz for the foreseeable future. Accordingly, the Commission has already reported that it has no "plans at this time to require DSRC-based ITS systems operating in the 902-928 band to relocate to the 5.9 GHz band." NPRM, Paragraph 83. This is a wise conclusion which the Commission should unequivocally confirm in the adoption of final rules in this proceeding.

Roughly eight million 900 MHz **EZ Pass** transponders are in use today, supported by more than a **\$500** million investment in infrastructure. Many other agencies that also heavily rely upon 900 MHz systems to support electronic toll collection and related **public** safety operations have also made substantial investments in transponders and infrastructure. The migration to 5.9 GHz will occur over time, as OBUs are installed in vehicles for a variety of

public safety and private applications, not just for electronic toll collection. With sufficient deployment, IAG members will be able to phase in 5.9 GHz systems at toll booths, but will need to maintain the current 900 MHz operations for existing users until market conditions and technology are sufficient to convert all users to new 5.9 GHz systems.

At this time, the pace at which these developments will occur cannot be predicted with any certainty. Accordingly, any consideration of 900 MHz band use issues must be deferred until such time as sufficient information and experience with respect to the development of anticipated 5.9 GHz services is available upon which to make reasoned judgments.

CONCLUSION

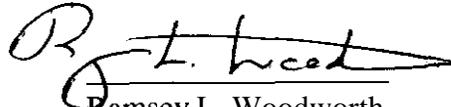
DSRC services in the 5.9 GHz Band hold the promise of providing the public with a vast array of intelligent highway services that will contribute in a very direct and substantial way to the safety of life, health and/or property on our nation's road and highway system. For this reason, IAG urges the Commission to proceed promptly in implementing use and service rules for the Band as outlined in our comments.

Respectively submitted,

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E-ZPass Regional Agencies

